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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,951	12/01/2003	Wen-Yen Chan	555255012652	3569

43563 7590 08/07/2007

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EXAMINER	
AHN, SAM K	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
08/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,951	CHAN ET AL.	
	Examiner	Art Unit	
	Sam K. Ahn	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-21,23-28 and 30-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11-16* is/are allowed.

6)☒ Claim(s) *1,5-10,17-21,23-28 and 30-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 May 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see p.12, filed 05/07/07, with respect to the rejection(s) of claim(s) 1,2,5-10,17,18,20,21,25-28,31 and 36-38 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Petsko US 6,535,066 B1.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "the desired transmit power signal converted to an analog signal... " as recited in claim 10 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several

views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 17—21,23,24 and 30-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 17, in lines 7-8, recites "...in response to a desired transmit power signal". It appears that the claim is reciting signal 170 in Fig.1. The specification of the instant application describes that element 125 is a desired average power indication (note paragraph 0027) providing a "desired average transmit power signal". However, the specification does not describe wherein the desired

transmit power signal is provided by element 125. Thus, the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art of how the element 125 provides the "desired transmit power signal".

Claims 18-21,23 and 24 directly depend on claim 17.

Claim 30 is rejected as applied to claim 17 reciting "a desired transmit power level signal value" in line 9, wherein claims 31-35 directly depend on claim 30.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko US 6,535,066 B1 in view of Ramesh US 6,205,127 B1 and Jeong et al. US 2002/0080887 A1 (Jeong, cited previously).

Regarding claim 1, Petsko teaches a transmitter apparatus (see Fig.4) comprising: an effectively continuously valued mapping function (28) that selects an output value for a power amplifier control signal (signal 38) in response to a combination of a peak to average power ratio signal (26 and 20 computed as PAPR, peak to average power ratio, note c.3, l.45) and other signals including signal quality measurement (36), the effectively continuously valued mapping

function comprising a table (note c.4, l.47) having a plurality of output values for the power amplifier control signals each with a corresponding desired transmit power value (values to compute for efficient bias point, note c.4, l.46-49); and a power amplifier (24) coupled to an analog representation signal (receiving analog signals from element 22) and the power amplifier control signal (from bias control 30), at least one parameter within the power amplifier being adjusted in response to the power amplifier control signal (controlling bias, note c.4, l.55-62).

And although Petsko teaches the signal quality measurement, Petsko does not explicitly teach wherein the signal quality measurement is a desired average transmit power signal.

Ramesh teaches wherein a signal quality measurement is a desired average transmit power signal (note c.2, l. 8-14, wherein signal quality measurement or the average power transmitted varies depending on length of path, reflections or refractions of signal path). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Ramesh in the system of Petsko of performing the signal quality measurement based on the desired average transmit power signal or the signal quality measurement of the average power for the purpose of determining the signal quality measurement based on length of path, reflections or refractions of signal path (note c.2, l. 8-14).

However, Petsko in view of Ramesh does not explicitly teach an encoder and modulator that generates an encoded and modulated transmit signal from an

input signal; a digital to analog converter, coupled to the encoder and modulator, for generating an analog representation signal of the encoded and modulated transmit signal.

Jeong teaches teach an encoder (30 in Fig.1) and modulator (70) that generates an encoded and modulated transmit signal from an input signal (input to element 10); a digital to analog converter (120), coupled to the encoder and modulator, for generating an analog representation signal of the encoded and modulated transmit signal (output of 120). Furthermore, one skilled in the art would recognize that the limitations taught by Jeong is also well-known to one skilled in the art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement the limitations taught by Jeong. Applicant has not disclosed that the limitations provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with combination of Petsko in view of Ramesh and Jeong because the IFFT processor (element 12 in Fig.4 of Petsko) is viewed equivalently as the IFFT (100 in Fig.1 of Jeong), and the signal provided to the IFFT of Petsko may well have only been omitted, as these are well-known to one skilled in the art. One skilled in the art would further recognize that the element 22 of Petsko may comprise the digital to analog converter (120 of Jeong). Therefore, it would have been obvious to combine the teaching of Jeong with Petsko to one of ordinary skill in this art to modify to obtain the invention as specified in the claim.

Regarding claim 5, Petsko further teaches wherein the power amplifier control signal is an analog signal (note c.4, l.59-62 wherein 30 comprising DAC provides analog signal to 24).

Regarding claim 6, Petsko further teaches wherein the power amplifier control signal is a digital signal (note c.4, l.55-58).

Regarding claim 7, Petsko further teaches wherein the mapping function selects the output values (selecting 38) within the function such that each with corresponding transmit power values for an optimized transmitter power efficiency while still meeting out of band spurious emissions and waveform quality requirement (element 28 providing optimized power through signal quality, temperature, modulation format and PAPR through elements 26,40,32,34 and 36 wherein one skilled in the art would recognize that the out of band spurious emissions and waveform quality requirements are met through the elements considered by element 28).

Regarding claim 8, Petsko further teaches adjusting parameter of a bias control (element 30).

Regarding claim 9, Petsko further teaches wherein the at least one parameter is any transmitter apparatus parameter that affects transmitter efficiency (power efficiency, note c.3, l.35-44).

Regarding claim 10, Petsko further teaches wherein the desired transmit power signal is converted to an analog signal prior to being input to the power amplifier (note c.4, l.59-62 wherein 30 comprising DAC provides analog signal to 24), however, does not explicitly teach the analog signal is provided prior to being input to the mapper, wherein the mapper of element 28 in Fig.4 provides digital signals. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement as such. Applicant has not disclosed that such implementation provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with digital signal format because signal quality measurement received by element 28 properly computes for further processing. At the same time, an artisan would recognize that any signal can be communicated through a digital signal or an analog signal. Therefore, it would have been obvious to one of ordinary skill in this art to modify the digital signal of element 36 with providing in an analog signal to obtain the invention as specified in the claim.

5. Claims 17-21,23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko US 6,535,066 B1 in view of Ramesh US 6,205,127 B1 and Jeong et al. US 2002/0080887 A1 (Jeong, cited previously) and in further view of Budnik US 6,043,707.

Regarding claim 17, Petsko teaches a transmitter apparatus (see Fig.4) comprising: a plurality of mapping functions (28 having several look up tables, note c.4, l.47) that selects an output value for a power amplifier control signal (signal 38) in response to a combination of a peak to average power ratio signal (26 and 20 computed as PAPR, peak to average power ratio, note c.3, l.45) and other signals including signal quality measurement (36), the effectively continuously valued mapping function comprising a table (note c.4, l.47) having a plurality of output values for the power amplifier control signals each with a corresponding desired transmit power value (values to compute for efficient bias point, note c.4, l.46-49) and further providing a multidimensional mapping function (wherein temperature, signal quality, modulation format and PAPR are interpreted as multidimensional of mapping by considering different dimensions of the signal); and a power amplifier (24) coupled to an analog representation signal (receiving analog signals from element 22) and the power amplifier control signal (from bias control 30), at least one device within the transmitter parameter within the power amplifier being adjusted in response to the power amplifier control signal (controlling bias, note c.4, l.55-62).

And although Petsko teaches the signal quality measurement, Petsko does not explicitly teach wherein the signal quality measurement is a desired transmit power signal.

Ramesh teaches wherein a signal quality measurement is a desired transmit power signal (note c.2, l. 8-14, wherein signal quality measurement or the average power transmitted varies depending on length of path, reflections or refractions of signal path). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Ramesh in the system of Petsko of performing the signal quality measurement based on the desired average transmit power signal or the signal quality measurement of the power for the purpose of determining the signal quality measurement based on length of path, reflections or refractions of signal path (note c.2, l. 8-14).

However, Petsko in view of Ramesh does not explicitly teach an encoder and modulator that generates an encoded and modulated transmit signal from an input signal; a digital to analog converter, coupled to the encoder and modulator, for generating an analog representation signal of the encoded and modulated transmit signal.

Jeong teaches teach an encoder (30 in Fig.1) and modulator (70) that generates an encoded and modulated transmit signal from an input signal (input to element 10); a digital to analog converter (120), coupled to the encoder and modulator, for generating an analog representation signal of the encoded and modulated transmit signal (output of 120). Furthermore, one skilled in the art would

recognize that the limitations taught by Jeong is also well-known to one skilled in the art. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement the limitations taught by Jeong. Applicant has not disclosed that the limitations provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with combination of Petsko in view of Ramesh and Jeong because the IFFT processor (element 12 in Fig.4 of Petsko) is viewed equivalently as the IFFT (100 in Fig.1 of Jeong), and the signal provided to the IFFT of Petsko may well have only been omitted, as these are well-known to one skilled in the art. One skilled in the art would further recognize that the element 22 of Petsko may comprise the digital to analog converter (120 of Jeong). Therefore, it would have been obvious to combine the teaching of Jeong with Petsko to one of ordinary skill in this art to modify to obtain the invention as specified in the claim.

However, Petsko does not explicitly teach the power amplifier comprising a plurality of control inputs.

Budnik teaches a power amplifier comprising a plurality of control inputs (see 205 and 207 in Fig.8 receiving bias control signal through signal 205 and combined control signal based on programmable attenuator and predistortion through signal 207. Budnik teaches that through signal 207 linear operation may be controlled as class A,AB or B (note c.7, l. 1-9). Both Budnik and Petsko teach the power amplifier being bias controlled wherein Budnik further teach control of

linear operation of the power amplifier. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Budnik in the system of Petsko of having the plurality of control input ports as taught by Budnik for the purpose of increasing the flexibility of the power amplifier and overall system by controlling linear operation of the power amplifier as class A,AB or B (note c.7, l. 1-9).

Regarding claim 18, Ramesh teaches wherein a signal quality measurement is a desired average transmit power signal (note c.2, l. 8-14, wherein signal quality measurement or the average power transmitted varies depending on length of path, reflections or refractions of signal path).

Regarding claim 19, Petsko further teaches wherein said transmit power signal is a peak transmit power signal (element 26).

Regarding claim 20, Petsko further teaches the power amplifier (element 24 in Fig.4).

Regarding claim 21, Petsko further teaches controlling bias (element 30 in Fig.4).

Regarding claim 23, Petsko further teaches associating transmitter temperature (element 34).

Regarding claim 24, Petsko further teaches signal quality measurement wherein one skilled in the art would recognize that continuous retransmission of signals (note c.4, l.43-44) consumes much power, especially in mobile phones.
At the time of the invention, it would have been obvious to a person of ordinary skill in the art to associate battery voltage with the mapping function. Applicant has not disclosed that further including the batter voltage provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the signal quality measurement because one skilled in the art would recognize that continuous retransmission of signals (note c.4, l.43-44) consumes much power, especially in mobile phones. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to recognize that the battery voltage of consumption would be considered in mapping by the selection means (element 28) for the purpose of saving battery power in a mobile phone.

6. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko US 6,535,066 B1 in view of Ramesh US 6,205,127 B1 and Jeong et al. US 2002/0080887 A1 (Jeong, cited previously) and Bartl et al. US 2003/0176202 A1 (Bartl).

Regarding claim 25, Petsko in view of Ramesh and Jeong teach all regarding the limitation of generating step, converting step and generating desired transmit power level value step and continuously mapping step, as explained above in claims 1 and 7, however, do not explicitly teach wherein the desired transmit power level value is derived from an open loop and closed loop power control signals.

Bartl teaches a processor determining desired transmit power level value is derived from an open loop and closed loop power control signals (note paragraph 0013). Bartl further teaches that each loop is used differently for low power levels or high power levels (note paragraph 0013). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Bartl in the system of Petsko by implementing the loop control signals using open loop and closed loop approaches for the purpose of properly controlling the power level adjustment depending on higher or low power levels (note paragraph 0013).

Regarding claim 26, Petsko further teaches the power amplifier (24 in Fgi.4).

Regarding claim 27, Petsko further teaches said control signal is a power amplifier control signal (output of 30 for element 24).

7. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Petsko US 6,535,066 B1 in view of Ramesh US 6,205,127 B1 and Jeong et al. US 2002/0080887 A1 (Jeong, cited previously) and in further view of Bartl et al. US 2003/0176202 A1 (Bartl) and Schlueter US 6,166,598.

Regarding claim 28, cited art teaches all subject matter claimed, as applied to claim 25, however, do not explicitly teach further including generating an automatic gain control amplifier control signal in response to the desired transmit power level value.

Schlueter teaches generating an automatic gain control amplifier control signal (output of 216 in Fig.5 for AGC 206) in response to a desired transmit power level value (212, note c.9, l.1-14). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Schlueter in the system of Petsko of coupling variable gain amplifier receiving the control signal for the purpose of adjusting gain to the desired average output power (note c.9, l.1-14).

Allowable Subject Matter

8. Claims 11-16 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
Patent Examiner

8/1/07